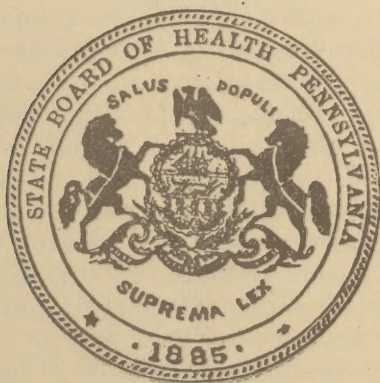


COMMONWEALTH OF PENNSYLVANIA.

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State Board of Health.



PRECAUTIONS AGAINST TRICHINOSIS.



## **PRECAUTIONS AGAINST TRICHINOSIS.**

This disease, (called also Trichiniasis and The Trichina disease,) is caused by the presence of a microscopic worm (*trichina spiralis*) in the flesh of the body. This parasite was first discovered in 1835, by Mr. J. Hilton, in a body which he was dissecting in Guy's Hospital, London, and was named by Prof. R. Owen, the great English naturalist. The effects of its presence in the human body were not known until 1860, since which time it has often been recognized as the cause of severe and fatal illness.

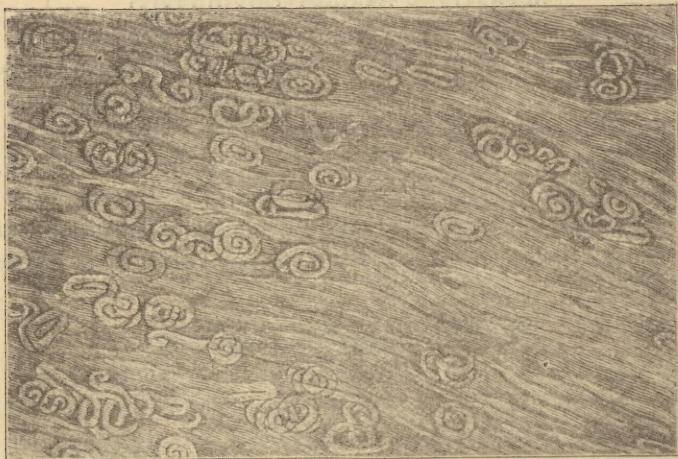
### **HOW THE DISEASE IS ACQUIRED.**

The source from which this parasite is introduced into the human body, is the flesh of the hog. When pork which has not been thoroughly cooked in every part, is eaten, some of the trichinae may be introduced alive from the pork into the stomach of the person. Once in the stomach and intestinal tract, the worms, which were dormant in the pork, take on an active life. They increase in size, become sexually mature, and multiply in countless numbers. They next eat, or bore their way, from the stomach and the intestines, into every part of the body, finally locating permanently in the muscles of the arms, legs, and trunk, where they form a sack or covering for themselves, and become quiescent during the rest of the person's life. So small are these parasites, that one anatomist estimated 700,000, and another anatomist 5,000,000 worms in a single pound of human flesh. It is no wonder, then, that they create a disturbance when once in the body. The hog obtains the trichina from rats, which it often kills and eats. Most mammals have in their flesh worms like the trichina, but the hog trichina is the only one which, in civilized countries, infests man. Hogs should not be fed on distillery swill or glucose corn, as both may contain dead rats; nor should they ever be kept in slaughter-house yards.

### **SYMPTOMS.**

While the trichinae are breeding in the stomach and migrating through the body, they often produce very serious disturbances of the system. These symptoms come on within





No. 1.—Specimen taken from the Deltoid muscle of Miss A. S., aged 13 years, a victim of Trichinosis. Died at Bethlehem, Penna., February 19th, 1886.



No. 2.—Another specimen from the same case. Length of Trichina stretched out, 1-30 inch; diameter, 1-700 inch. Magnified 38 diameters.

a very few days (from one to four) after the infected meat has been eaten. The symptoms are not uniform, but generally resemble those of the early stages of typhoid fever, or of rheumatism. There is at first thirst, loss of appetite, pain in the abdomen, sickness at the stomach and diarrhoea, (but sometimes constipation.) There is generally great physical and mental prostration. Usually there soon occur pains in the muscles, much resembling those caused by muscular rheumatism. There are pain, tenderness, stiffness, and swelling, as in rheumatism. Sometimes there are dropsical swellings, especially in the face and about the eyelids. But the most marked symptom is the rheumatoid pain.

### **PREVENTIVE PRECAUTIONS.**

Raw or partially cooked pork must be entirely abandoned as an article of diet. Cook all forms of pork thoroughly before it is eaten. This includes "sausages," "puddings," "scrapple," boiled ham, etc. Salting, pickling, or smoking pork does not kill the trichina. Sausages may be first boiled and then fried. The central portions of large hams are often not thoroughly cooked when boiled. The parasite is not in lard.

The trichinae may sometimes be seen with the naked eye, as minute white spots in pork, on careful examination. Such meat should at once be rejected.

All pig pens and piggeries should be kept scrupulously clean. The regulations of the State Board of Health on this subject are appended. The pens should be kept clear of rats and mice. If these animals are known to abound about a pen or piggery, the flesh of all hogs kept in the same should be most carefully examined before being offered for sale. Whenever a case occurs in a human being, no effort should be spared to discover its source. If this is discovered all the pigs kept in the same enclosure should at once be slaughtered and burned, or subjected to prolonged boiling. The pens and manure should be burned and the rats and mice exterminated.

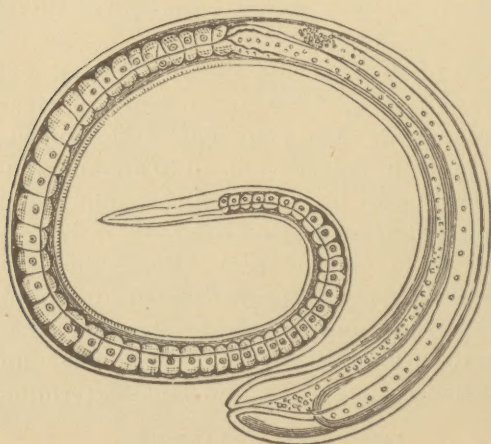
### **IMMEDIATE TREATMENT.**

When the symptoms above described are present and it is known that raw pork has been eaten, medicines should at once





No. 3.—Specimen taken from the pork which caused the death of Miss A. S. and her mother, Bethlehem, Penna., February, 1886



No. 4.—Single Trichina, magnified 280 diameters.

be given to cause vomiting and purging. A skilled physician should be called immediately and the case confided to his care.

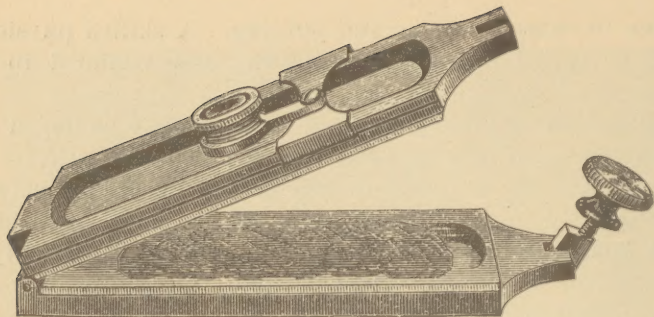
If the patient survive six weeks, recovery may be hoped for, as the worms will by that time have ceased to migrate.

To give an idea of the frequency of this disease, it may be mentioned that in the space of ten years the former President of this Board, Dr. Edward William Germer, in his capacity of Health officer of Erie, detected no less than six instances in and near that city, causing several deaths, and not less than fifty cases of serious and painful illness. There is no good reason for supposing that it is more frequent in that part of the State than in any other, but its presence constantly escapes recognition. In order that this may not continue to be the case, every Health Officer and every Board of Health should be provided with a microscope of low power for the examination of pork. If an ordinary microscope is not available, one made for the purpose by the "Bausch and Lomb Optical Company," of Rochester, New York, and called the "Trichinoscope," will be found the cheapest and most convenient. Mr. E. A. Rau, of Bethlehem, who made the microscopic examination in the case from which the illustrations in this circular were taken, thus describes its use:

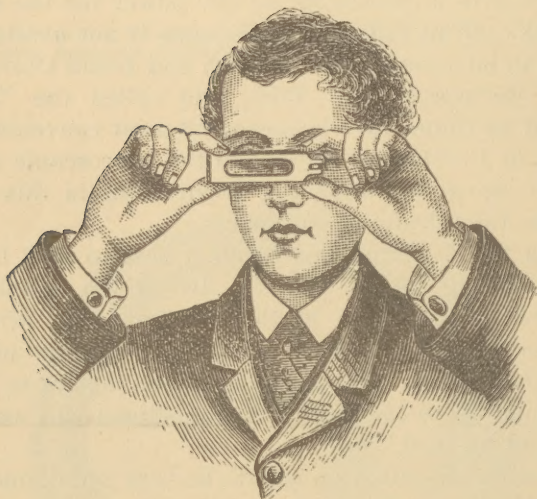
"In using the Trichinoscope I find it best to soak the slices of pork in strong Acetic Acid for five or ten minutes, then rinse in water and place in the Trichinoscope with water flooded over the sections, then compress them and adjust the focus of the doublet. Although the directions are to hold the Trichinoscope up to the light, other positions will answer, as I have found by trial."

The slices for examination should be very small, and as thin as a sheet of paper. They may be cut with a very sharp knife, a pair of curved scissors, or a Valentin's double-bladed knife to be found at any optician's.

If it is impossible to obtain a specimen of the suspected pork in order to establish the diagnosis, a small piece of muscle may be readily taken from the patient's arm by the physician, by means of a little instrument (muscle harpoon) made for the purpose, and sold by the instrument-makers.



No. 5.—The Trichinoscope.



No. 6.—Mode of using the Trichinoscope.



The fact is universally known that for a considerable period several of the Governments of Europe prohibited the importation of American pork, for the alleged reason that much of it was infested with these parasites. In order to obtain the withdrawal of this prohibition, the United States Government has established a systematic inspection of all pork intended for export to those countries. There is good reason to suppose that about three per cent. of the hogs thus examined are condemned. There is no such protection afforded to American consumers, and there is room for apprehension that much even of this condemned trichinous pork, known to be such, finds its way into the home market. Only the honesty of dealers prevents this, and that is, unfortunately, a broken reed to lean upon. The Government insists, however, that it shall be subjected to a temperature sufficiently high to kill the parasites. There is therefore more reason than ever before, to observe carefully the precautions set forth in this circular.

While this circular was in preparation the Board was called upon to investigate two deaths in the city of Lancaster due to this cause.



## REGULATION XII.

### FOR THE CONTROL AND MANAGEMENT OF PIGGERIES IN THE STATE OF PENNSYLVANIA.

1. This Board declares the keeping of pigs an offensive industry.

2. Hog yards and piggeries will not be permitted within 200 feet of any natural stream or water course, and the drainage from a piggery shall in no case be permitted to reach any natural stream until said drainage has been purified.

3. All pig pens shall be constructed with water-tight floors, either of planks or cement, which shall be elevated at least ten inches above the ground.

4. The feeding of pigs with carcasses of animals dead from natural causes will not be allowed. Offal must not be fed to pigs for at least a month before they are killed. The swine to be killed must be removed from the pens where offal is fed, and should be fattened on grain. It is not a good or safe plan to feed the offal of hogs to hogs, as disease is liable to be communicated to healthy animals in this way. Offal from hogs must be burned or buried.

5. All pig-pens must be daily cleansed and thus kept free from all offensive odors.

6. Where offal from slaughter-houses is fed to pigs the yards must be cleaned at least twice each week, the refuse being burned or buried.

7. Where garbage or offal is fed to pigs the troughs, basins or boxes must be water-tight and must be cleansed and dried as often as is necessary to prevent any unwholesome odors from arising.

8. A permit from a board of health must be obtained for the establishment of any hog ranch or piggery, or maintaining one already established, for garbage or offal feeding if more than fifty head of swine are kept.

**PRECAUTIONARY AND HYGIENIC CIRCULARS ISSUED BY THE STATE  
BOARD OF HEALTH OF PENNSYLVANIA.**

No. 7. Precautions against Cholera, Cholera Infantum, Cholera Morbus, Summer Diarrhoea and Dysentery.

No. 7. Precautions against Cholera, etc. (German.)

No. 7. Precautions against Cholera, etc. (Slovak.)

No. 7. Precautions against Cholera, etc. (Italian.)

No. 8. Precautions against Small-pox.

No. 18. Precautions against Typhoid Fever.

No. 19. Precautions against Diphtheria.

No. 20. Contagious and Infectious Diseases.

No. 20. Contagious and Infectious Diseases. (German.)

No. 20. Contagious and Infectious Diseases. (Slovak.)

No. 20. Contagious and Infectious Diseases. (Italian.)

No. 21. Precautions against Scarlet Fever.

No. 22. Precautions against Trichinosis.

No. 22. Precautions against Trichinosis. (German.)

No. 24. Recommendations in regard to the care of Infants.

No. 25. (Revised.) The "Act for the better protection of the health and morals of school children;" with a description of a cheap and convenient earth closet.

No. 26. School Hygiene, addressed to Teachers.

No. 27. Camp Hygiene.

No. 28. Precautions against Consumption.

No. 29. The dangers arising from public funerals of those who have died from Contagious and Infectious Diseases. Addressed to the Clerical Profession.

No. 30. The disposal of the Sewage of Public Edifices. Addressed to the Trustees and Managers of Public Institutions.

No. 31. Precautions to be adopted by Funeral Directors to prevent the spread of Contagious and Infectious Diseases.

No. 32. Precautions against Sunstroke.

No. 33. School Hygiene, No. 2, Addressed to School Directors and Trustees.



No. 34. First Treatment of the apparently Drowned and Suffocated.

No. 35. The Prevention of Blindness.

No. 36. Sanitary Protective Associations.

No. 37. Emergency Hospitals.

No. 38. The Care of the Eyes.

No. 39. Dairy Hygiene.

No. 40. The Law establishing Boards of Health in Boroughs.

No. 41. Personal Precautions recommended to be taken by Physicians in attending those suffering from certain Communicable Diseases.

No. 42. How to meet Cholera. Addressed to Boards of Health.

No. 43. Model Regulations for the Storage and Removal of Garbage.

No. 44. Model Rules of Boards of Health.

No. 45. Powers and Possibilities of Boards of Health.

No. 46. The Sanitary Code of Pennsylvania for the Restriction of Communicable Diseases.

No. 47. Precautions against Whooping Cough.

No. 48. Precautions against Measles.

No. 49. Suggestions with regard to Railroad Hygiene and the Prevention of Accidents.

No. 50. School Hygiene No. 5. On the Teaching of Hygiene in the Public Schools. Addressed to Superintendents and Principals.

Any of the above circulars may be obtained by residents of Pennsylvania on application to Dr. Benjamin Lee, Secretary of the State Board of Health, 1532 Pine street, Philadelphia, enclosing a two-cent postage stamp. The postage for the entire series, enclosed in a substantial box envelope, is nine cents.

BENJAMIN LEE, M. D.,

Secretary.

GEO. G. GROFF, M. D.,

Chairman Committee on Preventable Diseases.